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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/039,296

10/19/2001

James Stephenson

054998/0002

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01/25/2005

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INTELLECTUAL PROPERTY DEPARTMENT
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NEW YORK, NY 10022

EXAMINER

YOHA, CONNIE C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,296

Applicant(s)

STEPHENSON ET AL.

Examiner

Connie C. Yoha

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-81 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-81 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


CONNIE C. YOH
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Examiner took notice of the remarks and amendments made by applicant filed on 10/8/04.
2. A second non-final rejection is applied to the pending claims using newly cited references.

Response to Amendment

3. This office action is in response to Amendment filed on 10/08/04.
Claim 1, 4, 9-11, 13, 19, 30, 40, 41, 43, 56-58, 60, and 74-78 are amended.
4. Claims 1-81 are pending.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-24, 39-81 are rejected under 35 U.S.C. 102(b) as being anticipated by Lienau et al, Pat. No. 4791604.

With regard to claim 1 and 47, Lienau discloses a memory cell comprising: a magnetic element (fig. 14, 162) having a first segment (fig. 14, 166), a second segment (fig. 14, 168) and a third segment (fig. 14, 170) for storing first, second and third remnant magnetic fields in response to a write signal, wherein each of the first, second and third remnant magnetic fields may have a first direction (fig. 15, X-direction) or a second direction (fig. 15, Y-direction), and

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wherein when said first, second and third remnant magnetic fields are in said first direction the memory cell is in a first orientation, and wherein when said first, second and third remnant magnetic fields are in said second direction the memory cell is in a second orientation (col. 14, line 38-col. 15, line 4) (also with regard to claim 48-54) ; a write line (fig. 16a, 176 and 178) for applying said write signal to said magnetic element (col. 15, line 9-14); and a sensor (fig. 16a, 184) for detecting the orientation of the memory cell (col. 14, line 25-32) (col. 15, line 28-61).

With regard to claim 2, Lienau discloses wherein each of the first, second and third segment have an inner side and an outer side and wherein said remnant magnetic field exists in each of the first, second, and third segments between said inner and outer sides (col. 15, line 28-col. 16, line 9) (also with regard to claim 3, 4, 9).

With regard to claim 5, Lienau discloses wherein the magnetic element and the sensing region are substantially parallel (fig. 4, 12 and 26) (also with regard to claim 55, 61-62, 73).

With regard to claim 6, Lienau discloses wherein the first, second and third magnetic flux fields have components that are substantially normal to the sensing region (col. 16, line 27-36) (also with regard to claim 7-8 and 64-65).

With regard to claim 10, Lienau discloses wherein the sensor is formed of a material that is compliant with a CMOS process (col. 21, line 44-61) (also with regard to claim 11-15, 40- 45, 57-60, 75-80).

With regard to claim 16, Lienau discloses wherein the sensor has a current application line and a voltage measurement line and wherein the sensing region is defined by an intersection of said current application line and the voltage measurement line (col. 6, line 21-49) (also with regard to claim 63, 81).

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With regard to claim 17 and 66, Lienau discloses a memory cell comprising: a non-linear magnetic element (fig. 14, 162); and a write line (fig. 16a, 176, 178) (also with regard to claim 67) for storing a remnant magnetic field in said magnetic element (col. 15, line 9-14).

With regard to claim 18, Lienau discloses wherein said magnetic element has two or more segments (fig. 14, 166, 168, 170 and 172), wherein said segments are not co-linear (fig. 14 show a rectangular shape magnetic element) and wherein each of said segment stores a magnetic field (col. 14, line 14-32).

With regard to claim 19, Lienau discloses memory further comprising a sensor formed in a substrate and having a sensing region and wherein magnetic flux fields produced by each of said magnetic fields pass through said sensing region (col. 14, line 24-27) (col. 14, line 64-col. 15, line 4) (also with regard to claim 68-69).

With regard to claim 20, Lienau discloses wherein, in a first orientation, said magnetic flux field pass through said sensing region in a first general direction and wherein, in a second orientation, the magnetic flux fields pass through said sensing region in a second general direction, wherein said first general direction is opposite to said second general direction (col. 15, line 5-14) (also with regard to claim 21-24).

With regard to claim 39, Lienau discloses wherein each of said magnetic flux fields passes through a sensing region of the sensor; and the sensor is a Hall sensor (fig. 4, 26) (col. 6, line 29-49) (also with regard to claim 46, 56, 70-72, 74).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lienau et al, Pat. No. 4791604 in view of Peterson et al, Pat. No. 6016269.

With regard to claim 25, Lienau, as applied in prior rejection, discloses all claimed subject matter except, wherein said magnetic element has two segments. However, Peterson discloses a magnetic memory element which can be of various different shapes cells (fig. 5, 6, 7) (col. 7, 31-34) line having any number of segments corresponding to their shapes as magnetic memory element for storing information (col. 2, line 41-48). Therefore, it would have been obvious for one having an ordinary skill in the art at the time the invention was made to use the type of memory cells of Peterson's in Lien's to obtain a magnetic memory element as a storage element that is smaller in size and is lower in costs to manufacture and is highly reliable (also with regard to claim 26-38).

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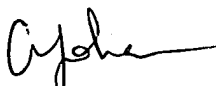
Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Monsma et al (6515897) and Prinz (5025416) disclose a magnetic memory device with sensor device.

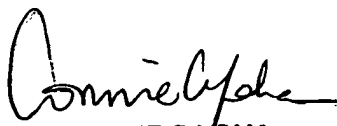
8. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

9. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571) 212-1799. The examiner can normally be reached on Mon. - Fri. from 8:00 A.M. to 5:30 PM. The examiner's supervisor, David Nelms, can be reached on (571) 212-1787. The fax phone number for this Group is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-0956.


C. Yoha

January 2005


CONNIE C. YOH
PRIMARY EXAMINER